WE CLAIM:

1. An endovascular graft or section thereof comprising:

a flexible material portion and a transversely oriented member secured to the flexible material portion with a joint that includes at least one flap of the flexible material folded back and secured to form a loop portion about the transversely oriented member.

2. The endovascular graft or section thereof of claim 1 wherein the flexible material portion further comprises a plurality of layers and the flap is formed of a layer that is secured to itself.

3. The endovascular graft or section thereof of claim 1 wherein the transversely oriented member comprises a material having high strength relative to the strength of the flexible material.

4. The endovascular graft or section thereof of claim 3 wherein the transversely oriented member comprises nickel titanium.

5. The endovascular graft or section thereof of claim 1 wherein the flap is secured by bonding with an adhesive to the flexible material of the graft or section thereof.

6. The endovascular graft or section thereof of claim 5 wherein the adhesive is selected from the group comprising FEP and PFA.

7. The endovascular graft or section thereof of claim 1 wherein the flexible material portion comprises fusible material and the flap is secured by

thermomechanical compaction of the flap and a portion of the fusible material in contact with the flap.

8. The endovascular graft or section thereof of claim 7 wherein the fusible material comprises ePTFE.

9. The endovascular graft or section thereof of claim 8 wherein the ePTFE has a thickness of about 0.001 to about 0.01 inch.

10. The endovascular graft or section thereof of claim 8 wherein the ePTFE is sintered.

11. The endovascular graft or section thereof of claim 1 wherein the flexible material portion further comprises a plurality of layers and the flap is formed of a layer that is secured to another layer.

12. The endovascular graft or section thereof of claim 1 wherein the at least one flap is about 1 to about 25 square millimeters.

13. The endovascular graft or section thereof of claim 1 wherein the joint comprises a plurality of flaps of flexible material folded back and secured to form loop portions about the transversely oriented member.

14. The endovascular graft or section thereof of claim 1 wherein the joint comprises about 2 to about 24 flaps of flexible material folded back and secured to form loop portions about the transversely oriented member.

15. The endovascular graft or section thereof of claim 1 wherein the transversely oriented member comprises a circumferentially oriented member.

16. The endovascular graft or section thereof of claim 1 wherein the transversely oriented member comprises a connector member or portion thereof.

17. The endovascular graft or section thereof of claim 1 wherein the transversely oriented member comprises an expandable stent or portion thereof.

18. The endovascular graft or section thereof of claim 17 wherein the expandable stent comprises a self-expanding stent.

19. An endovascular graft or section thereof comprising a flexible material portion and a transversely oriented member secured to the flexible material portion with a joining means that includes at least one flap means of the flexible material configured to transfer tensile force on the transversely oriented member into a shear component of force on the flap means and flexible material portion.

20. An endovascular graft or section thereof comprising a flexible material portion and an connector member secured to the flexible material portion with a joint that includes at least one flap of the flexible material folded back and secured to form a loop portion about the connector member.

21. The endovascular graft or section thereof of claim 20 wherein the flexible material portion further comprises a plurality of layers and the flap is formed of a layer that is secured to itself.

22. The endovascular graft or section thereof of claim 20 wherein the connector member is comprised of a material having high strength relative to the strength of the flexible material.

23. The endovascular graft or section thereof of claim 22 wherein the connector member comprisesnickel titanium.

24. The endovascular graft or section thereof of claim 20 wherein the flap is secured by bonding with an adhesive to the flexible material of the graft or section thereof.

25. The endovascular graft or section thereof of claim 24 wherein the adhesive is selected from the group comprising FEP and PFA.

26. The endovascular graft or section thereof of claim 20 wherein the flexible material portion comprises fusible material and the flap is secured by thermomechanical compaction of the flap and a portion of the fusible material in contact with the flap.

27 The endovascular graft or section thereof of claim 26 wherein the fusible material comprises ePTFE.

28 The endovascular graft or section thereof of claim 27 wherein the ePTFE has a thickness of about 0.001 to about 0.01 inch.

29. The endovascular graft or section thereof of claim 27 wherein the ePTFE is sintered.

30. The endovascular graft or section thereof of claim 20 wherein the flexible material portion further comprises a plurality of layers, and the flap is formed of a layer that is secured to another layer.

31. The endovascular graft or section thereof of claim 20 wherein the at least one flap is about 1 to about 25 square millimeters.

32. The endovascular graft or section thereof of claim 20 wherein the joint comprises a plurality of flaps of flexible material folded back to form loop portions about the connector member which are secured in the looped configuration.

33. The endovascular graft or section thereof of claim 20 wherein the joint comprises about 2 to about 24 flaps of flexible material folded back to form loop portions about the connector member which are secured in the looped configuration.

34. An endovascular graft or section thereof comprising:

a flexible material portion and an connector member secured to the flexible material portion with a joining means that includes at least one flap means of the flexible material configured to transfer tensile force on the connector member into a shear component of force on the flap means and flexible material portion.

35. A method for forming a joint between connector member and a flexible material portion of an endovascular graft, comprising:

fixing a flap of the flexible material portion about at least a portion of the connector member such that tensile force on the connector member is transferred into a shear component of force on the fixed portion of the flap.

36. The method of claim 35 wherein the flexible material portion of the endovascular graft comprises ePTFE and the flap is fixed about at least a portion of the connector member by thermomechanical compaction.

37. The method of claim 35 wherein the flexible material portion of the endovascular graft comprises ePTFE and the flap is fixed about at least a portion of the connector member by FEP or PFA.

38. A method for securing a transversely oriented member to a flexible material portion of an endovascular graft or section thereof comprising:

a) disposing the transversely oriented member in proximity to a flap in a flexible material portion of an endovascular graft or section thereof;

b) folding the flap over at least a portion of the transversely oriented member to form a looped portion of the flap about the transversely oriented member; and

c) securing the flap in the looped configuration.

39. The method of claim 38 wherein the flap is comprised of a portion of a layer of flexible material and the flap is secured to the layer of flexible material.

40. The method of claim 38 wherein the flap is secured in the looped configuration with adhesive.

41. The method of claim 38 wherein the flap is comprised of a portion of a first layer of flexible material and the flap secured to a portion of a second layer of flexible material.

42. The method of claim 38 wherein the flexible material comprises ePTFE.

43. The method of claim 42 wherein the flap is secured in the looped configuration by thermomechanical compaction.

44. The method of claim 42 wherein the flap is secured in the looped configuration with FEP or PFA.

45. The method of claim 42 wherein the ePTFE material of the flap is sintered after being secured in the looped configuration.

46. A method for securing a circumferentially oriented member to a flexible material portion of an endovascular graft or section thereof comprising:

a) disposing a circumferentially oriented member in proximity to a flap in a flexible material portion of an endovascular graft or section thereof;

b) folding the flap over at least a portion of the circumferentially oriented member to form a looped portion of the flap about the circumferentially oriented member; and

c) securing the flap in the looped configuration.

47. The method of claim 46 wherein the flap is comprised of a portion of a layer of flexible material and the flap is secured to the layer of flexible material.

48. The method of claim 46 wherein the flap is secured in the looped configuration with adhesive.

49. The method of claim 46 wherein the flap is comprised of a portion of a first layer of flexible material and the flap secured to a portion of a second layer of flexible material.

50. The method of claim 46 wherein the flexible material comprises ePTFE.

51. The method of claim 50 wherein the flap is secured in the looped configuration by thermomechanical compaction.

52. The method of claim 50 wherein the flap is secured in the looped configuration with FEP or PFA.

53. The method of claim 50 wherein the ePTFE material of the flap is sintered after being secured in the looped configuration.

54. A method for securing an expandable member to a flexible material portion of an endovascular graft or section thereof comprising:

a) disposing the expandable member in proximity to a flap in a flexible material portion of an endovascular graft or section thereof;

b) folding the flap over at least a portion of the expandable member to form a looped portion of the flap about the expandable member; and

c) securing the flap in the looped configuration.

55. The method of claim 54 wherein the flap comprises a portion of a layer of flexible material and the flap is secured to the layer of flexible material.

56. The method of claim 54 wherein the flap is secured in the looped configuration with adhesive.

57. The method of claim 54 wherein the flap comprises a portion of a first layer of flexible material and the flap secured to a portion of a second layer of flexible material.

58. The method of claim 54 wherein the flexible material comprises ePTFE.

59. The method of claim 58 wherein the flap is secured in the looped configuration by thermomechanical compaction.

60. The method of claim 58 wherein the flap is secured in the looped configuration with FEP or PFA.

61. The method of claim 58 wherein the ePTFE material of the flap is sintered after being secured in the looped configuration.